

SECOND RMAP HEALTH STUDY PLAN



HEALTH STUDY PLAN

- Public Health Statement
- Executive Summary
- Introduction
- Review of Basis for Cleanup Levels
- Review of Past Exposure/Biomonitoring Studies
- Review of Disease Rate Studies
- Second RMAP Study
- Butte Blood Lead Study
- Conclusions and Recommendations



INTRODUCTION

- Scope of Study: RMAP Requirements and Limitations
- Study Planning and Public Engagement
- Report Organization

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REVIEW OF BASIS FOR CLEANUP LEVELS

- Review of Health Risk Assessments
- Exposure Pathways
- Identification of Metals of Concern
- Consideration of Mixtures
- Derivation of Soil Cleanup Levels
- Five Year Reviews of Cleanup Levels

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REVIEW OF PAST EXPOSURE/BIOMONITORING STUDIES

- University of Cincinnati – Butte 1990 blood lead data (report 1992)
- ATSDR – Butte 2000 blood lead and urine arsenic data (report 2001)
- First RMAP study – Butte 2002-2012 blood lead data (report 2014)
- Hailer et al. study – Butte blood and hair 2015 data, multiple metals (published 2017)
- Review of other relevant literature

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REVIEW OF DISEASE RATE STUDIES

- ATSDR – Butte Silver Bow cancer incidence 1989-1998 (ATSDR report 2002)
- DPHHS analysis – Butte Silver Bow cancer incidence & mortality 1981-2010 (issued 2012)
- Davis et al. study – Disease mortality Silver Bow & Deer Lodge (published 2018)
- McDermott et al. study – Silver Bow & Deer Lodge cancer incidence (presented October 2018)
- DPHHS analysis – Silver Bow cancer incidence & mortality 2002-2016 (issued 2018)
- Review of other relevant literature

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SECOND RMAP BIOMONITORING STUDY

- BPSOU Study Area and Population
- Description of RMAP Environmental Database
- Description of the RMAP Biomonitoring Database
- Overview of Analyses

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BUTTE BLOOD LEAD STUDY

- Refinement of the Blood Lead Database
- Butte Blood Lead Summary Statistics
- Trends in Blood Lead Data
- Butte Neighborhood Comparison

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**EXAMPLE ISSUES FOR RISK ASSESSMENT/BIOMONITORING
TABLE**

- Metals considered to be “of concern” & their health effects
- Protectiveness of cleanup levels & effectiveness of remediation
- Concerns about health issues from historic mining
- Lead exposures in adults
- Mixtures: additive, synergistic and antagonistic effects
- Safe gardening practices
- Pet exposures

TABLE 4-3